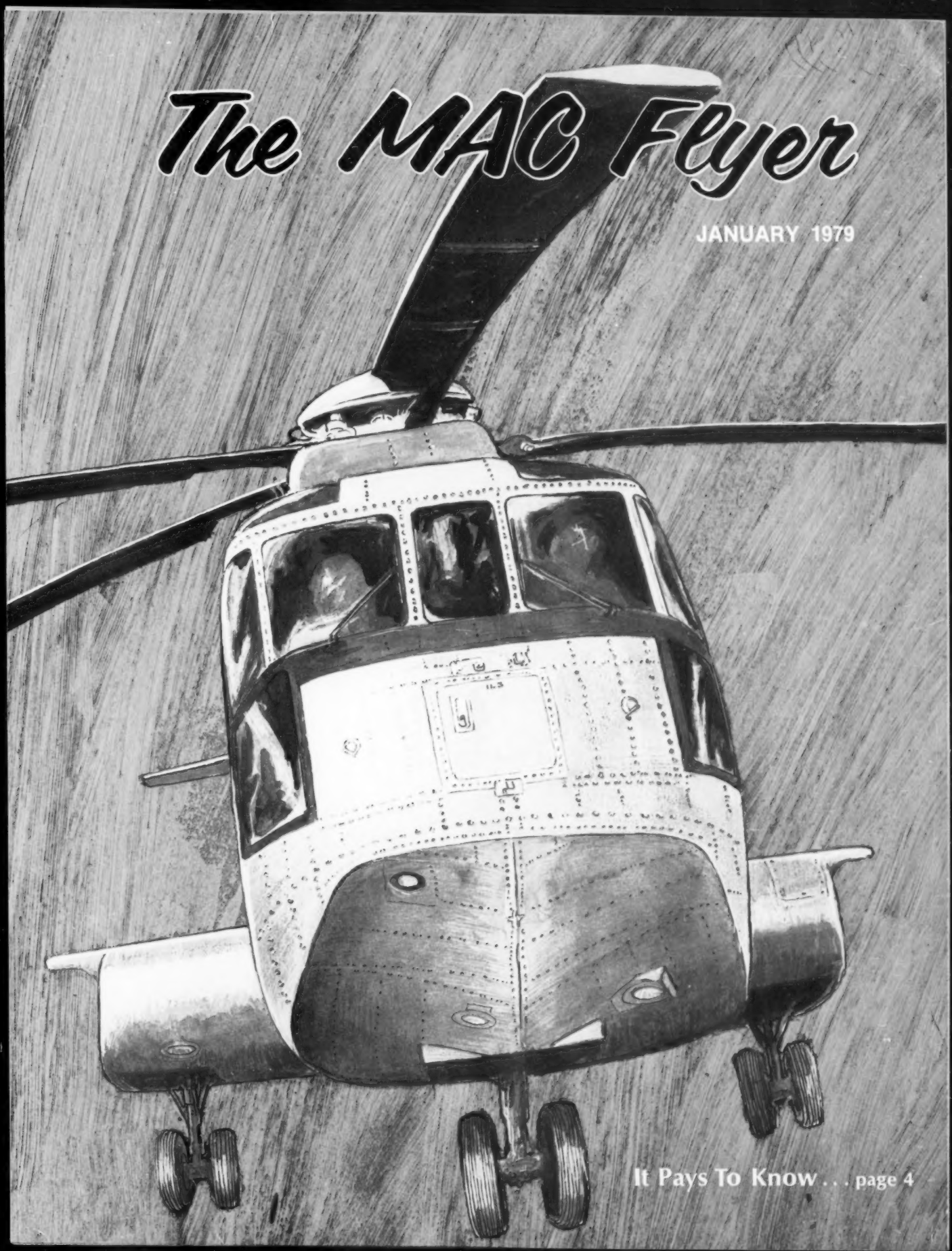
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JANUARY 1979
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The MAC Flyer

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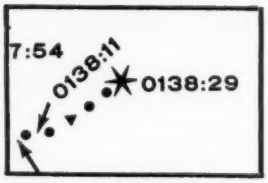

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"A CAPITAL IDEA"

Enter the 1979 MAC Flying Safety Writing Contest. You'll receive a colorful C.R. Terror T-shirt free—for keeps. That's right, a multicolored T-shirt embellished with the likeness of MAC's favorite flyer. Here's all there is to it.

How To Enter

Put together from 1,000 to 3,000 well-chosen words—that's about six to 14 typewritten pages, double spaced. It can be poetry, prose, or philosophy, and it may be humorous, serious, factual or pure fantasy. Anything with a flying safety message, either expressed or implied, is fair as long as it's original. Type it up in two copies, attach a cover sheet that includes the title, your name, address, and a short biographical sketch of yourself, and send it to:

Flying Safety Writing Contest
HQ MAC/IGFE
Scott AFB IL 62225

Prizes

The top three winners will receive handsome, personalized desk sets. Honorable mention winners will be awarded beautiful walnut plaques engraved with their name. All entrants that qualify for judging will get a year's subscription of *The MAC Flyer* sent to their home address and, of course, a C.R. Terror T-shirt.

Eligibility

Anyone can enter and qualify for the prizes.

Hurry

All entries must be postmarked no later than 31 March 1979. Rush your potential prize winners along with your shirt size to us, so you can be the first on your block to show up at happy hour in your very own C.R. Terror T-shirt.

Honorable Mention, 1978 MAC Flying Safety Writing Contest

It Pays To Know

by Capt Gregory A. Maul
1550th Aircrew Training and Test Wing
Kirtland AFB, New Mexico

Experience is a good teacher, but an experienced teacher is even better.

I had been on the Rock for two weeks and had seen snow, rain, sleet, ice pellets, and winds so strong that the birds were walking. The only things I hadn't seen were the sun and my new unit's helicopters towed out from behind the closed hangar doors. But this particular day would be different. The skies were blue, the gulls were soaring, and one rescue helicopter sat waiting on the ramp for its crew. Today was the day for my long-postponed duty familiarization flight and, although I was not overly enthusiastic about the particular mission, I was eager for the chance to get back in the cockpit.

The familiarization flight would be routine: a quick introduction to the most convenient methods of arriving and departing the field, a survey of the local instrument approaches, then, off for a flyby of the remote operating sites, a chance to look at the pararescue drop zone, and perhaps a cursory pass of the restricted areas. In all, I predicted a rather uninspiring but necessary flight as a prelude to the more dramatic and exciting flights I had visions of logging.

The word "uninspiring" shifted my thoughts from the upcoming flight to the individual who was about to conduct it. Though we had been acquainted for a short time, I had formed some rather astute and accurate conclusions about him. The man was a senior major with a wealth of flying time but, as rumor had it, still flew strictly by the book. He reportedly knew the regs by paragraph numbers and obviously expected you to be at least that familiar with them. He seldom let his copilots rest during a flight, and the amount of free liquor he collected at the bar attested to his knowledge of minutiae in the tech orders. His homespun philosophy was barely tolerable, and I had classified him as generally boring.

This critical analysis of my AC was suspended with the start of the crew briefing. Things progressed smoothly, and I listened intently to the major's words of wisdom. As predicted, we flew the special arrival and departure corridors, and I soon learned that the VOR approach lined up the aircraft perfectly for a touchdown on the auxiliary taxiway. A grand tour of the remote sites was next. En route, I found myself floundering over questions about the OI's. I explained, with a trace of annoyance in my voice, that I really hadn't had the opportunity yet to study them in depth. He said, "Time is money. You need to know those before we schedule you for alert." I offered a visual acknowledgement.

Over the first site my guide launched into a detailed description of the many and various terrain features surrounding it. After the second description, I assumed that he intended the same for all five sites and found my thoughts drifting to events that had occurred in the Club the night before. As I relished those memories, he droned on to a conclusion over the last site. Then, to my astonishment, he started to quiz me on what I had just seen. "How uncool!" I thought. "Is this some weird kind of no-notice?" While my inattention was nakedly obvious, his only comment was, "An opportunity wasted is an oppor-

tunity lost."

Chafing from this slight embarrassment, I decided to play his game and rivet my concentration on his every word. From the drop zone to the restricted areas, I listened closely and painfully to all details, and with my notes on the boundaries of the last no-fly area completed, I assumed we would turn for home. Instead we flew in the opposite direction while the major pointed out numerous ridges, peaks, and forced landing areas.

At a point about three hours into the flight, my patience wore thin, and I questioned him on the value of going any further. He replied, "Just beyond this peak is an old strip, one of the only available areas around in case of a forced landing. Up here, it pays to know the lay of the land."

With that, I started to change my assessment of his status from senior major to terminal major, when something suddenly demanded my attention. An intermediate gearbox chip light had illuminated (an indication of possible gearbox failure and subsequent loss of tail rotor), and my instructor was initiating a descending turn toward the recently identified strip. After several radio transmissions and completion of the checklists, we were safely on the ground. With the rotors shut down and contact with approach control established through one of their remote transmitters, the emergency was over. Next came the task of determining the cause.

The chip light illuminated —indicating a possible gearbox failure and subsequent loss of the tail rotor.

Upon removal of the chip detector plug, the problem was apparent. There was no unusual wear of the gearbox; the detector had simply been exposed to moisture and shorted. After the plug was dried and reinserted, the detector light blinked off. The major explained the situation to approach and asked for the information to be passed to our ops section with the request that we be authorized to return to base.

While waiting for a response, and after studying the map, I determined why we'd had no curious local visitors—we were evidently 20 air miles from civilization.

Our blue skies to the northeast were now a dull gray, the OAT read 2°C, and the snow on the ridge line we had crossed earlier was swirling under the rising winds. Sunset was two hours away. Permission to take off came at 1600 hours with the provision that we complete a 20-minute hover check. It was snowing by then. The OAT had dropped to -4°C and the visibility to one mile; the familiar ridge line was completely obscured. Approach informed us that home station was reporting clear skies and good visibility, and since the hover had produced no new chip lights, we prepared to go.

The AC briefed that he intended to head south, following a river until we hit the coast, and then proceed west along the coastline

to home. With the visibility as low as it was and ceilings estimated by me to be no higher than 500 feet, I asked him about high terrain and hills. He told me that the terrain dropped from our present position all the way to the coast and that the glacier had cleared the area of irregular features over 10,000 years ago. The map made it appear so, yet I still wasn't completely confident about placing our fate in the passing of a 10,000-year-old glacier. "Any manmade obstructions along the river?" I asked.

It was snowing by then and the familiar ridge line was completely obscured.

"None," he said. "The ground is too soft even to support power poles."

With darkness one-half hour away, we departed, following the river at 500 feet altitude. At one point the river split into three branches with no indication on the map which one led to the coast. My AC showed no signs of confusion and promptly followed the one to the right. Though this seemed the more logical course, it was not the largest of the branches, and I asked to be let in on the secret of his knowledge. He calmly informed me that normally the other two branches were small streams. Only now during the spring runoff did they swell to the size of a river. His selection of this course came simply from experience in the area. As the ground dropped toward the coast, the ceiling allowed us a slow but steady increase in altitude. "Had this guy anticipated this development too?" I silently wondered. As he called out his estimate of about two miles to the coast, I could see its different features coalesce in the distance.

With the specter of spending the night in subfreezing temperatures or the possibility of bumping into the ground fast fading into history, we turned west into a setting sun and clear air. I found myself intently studying the shoreline in the dimming light and trying to recall all those specifics my mentor had served up for me what seemed like years ago.

The commander welcomed us back that evening with appropriate refreshment and observed that my familiarization flight should have proved quite enlightening. With that idea in mind, I asked the major if we could continue the mission the next day. He said, "Well, tomorrow is another day."

"Not bad philosophy," I thought.

ABOUT THE AUTHOR

Capt Gregory A. Maul entered the Air Force through OTS in 1972 after graduating from the University of Illinois. His first assignment after pilot training was to Patrick AFB, Florida, where he piloted the HH-3E. After two years in the sun and fun of Cocoa Beach, he was assigned to Det 14, 39th ARRW, Keflavik NS, Iceland. While at "Kef," Capt Maul upgraded to instructor pilot and then to flight examiner. He is presently an H-3 standardization pilot with the 1550th Aircrew Training and Test Wing at Kirtland AFB, New Mexico.

A statement of editorial policy.

Say Again All After MACRP 127-5

Since we are always getting new people on board and the "old heads" tend to forget, every so often we trot out our charter, dust it off, and take a look at some of the realities and perceptions of what MACRP 127-5, better known as *The MAC Flyer*, is all about.

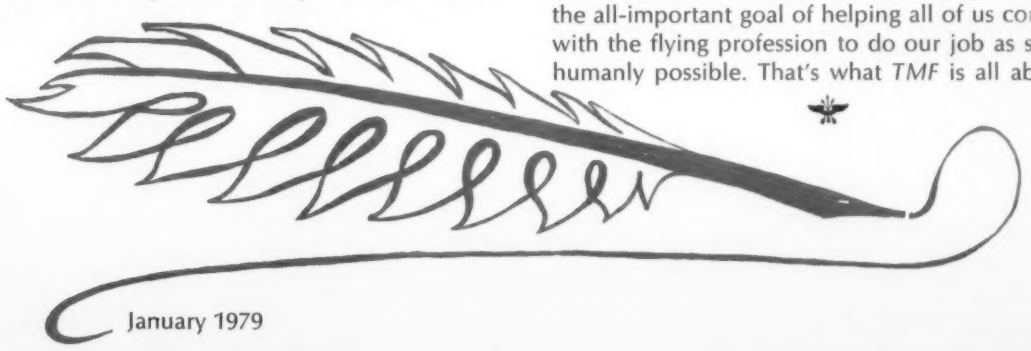
Officially, the *Flyer* is the command's "primary medium for conveying professional, educational flight safety material," according to MACR 127-1. Our target audience is aircrewmembers. Many people overlook these facts and often want to know why *TMF* doesn't run stories on any one of half a dozen different topics they think it could include. The answer is simple—if we can't relate it to aircrews and flying safety, then an article is probably not suited for *The MAC Flyer*.

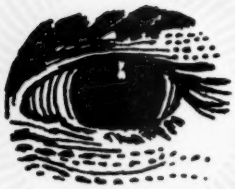
One of the things we *are not* is a public relations publication. The *Flyer* staff is located in the MAC IG's chain of command, not the OI's. We try to keep the horn-tooting to a minimum, except as it relates to aircrewmembers doing things safely and saving airplanes in the process. We portray crisis events that were handled well, in the hope that remembering good techniques or responses they read about will benefit somebody down the line if they face a similar challenge. Conversely, using examples from real life, we strive to show how things have been done incorrectly, with the idea of letting aircrewmembers experience as many of their "close calls" as possible vicariously. The aim is not to point the fickle finger at people or embarrass anybody, only to try and offer you the opportunity to learn from the mistakes and attaboys of others in the flying fraternity.

You may wonder about the length of time that passes before a particular accident or incident is reported in *The MAC Flyer*. Two factors are at work in this case. For one thing, considerable time usually passes before the official version of an accident is made available for public scrutiny. Accident boards normally move in a deliberate and cautious way before rendering their final diagnosis. The second thing is that—other than items appearing in "After Deadlines"—everything printed in the *Flyer* is scheduled about three months in advance for each issue.

Some people wonder why we "disguise" most of the mishaps we write about and, again, there are a couple of reasons. As mentioned earlier, we aren't out to point the finger at people, so specific dates, places, tail numbers, and names of individuals involved aren't important in most situations. Also, AFR 127-4 suggests removal of this kind of information to protect the "privileged status" of the Air Force reports we work from and to prevent somebody from turning a "safety education" article into "Exhibit A" in a lawsuit. Civil aircraft accident reports are covered by a different set of rules which permit wider latitudes in using the information they contain. Even so, we normally refrain from identifying the names of airlines or individuals involved when we discuss civilian mishaps.

One last point—although the combined expertise of the *Flyer* staff includes considerable flying experience in several aircraft, we still need inputs from you folks out there traversing the airways every day. The annual writing contest, which now is in full swing, is one good way to contribute; but we're open to ideas, suggestions, and unsolicited manuscripts all year long. Whenever something interesting happens to you or you get a brainstorm relating to flying safety that could be shared with others in our profession, let us know by phone or letter. We can use any literary device within reason from poetry or drama to the more common narrative to tell the story, and even though we're dealing with a serious subject, we find that humor is frequently a very effective way to get a fly-safe message across. The *Flyer* can use just about anything that fits within the framework outlined above, as long as it meets the all-important goal of helping all of us connected with the flying profession to do our job as safely as humanly possible. That's what *TMF* is all about!





Flicker Vertigo

by Maj John H. Davids
HQ MAC Flight Safety

A few years ago as I was driving along a picturesque Virginia highway, the late afternoon sun shone through the large trees that lined the edge of the road like colonial minutemen. Each time I passed a tree's shadow, the following flash of sunlight made me blink. I drove on and the blinking got worse; the alternating flashes of sunlight and shadow across the windshield began to feel like physical blows. The blows progressively worsened until I actually cringed in anticipation. After traveling along the sun-streaked highway for about half an hour I was physically exhausted, so I pulled off to the side and waited for sundown. I later learned I had suffered from photo-sensory disorientation—flicker vertigo. At first I didn't relate the phenomenon to flying, but a little research turned up some facts that really surprised me, and I'd like to share them with you here.

Whenever your eyes are receiving light, your brain produces an electronically traceable impulse called an alpha wave. Flickering lights between one and 40 cycles per second (cps) can affect the alpha wave and may cause physical problems. Flying introduces us to a lot of flickering lights in the critical frequency range. An aircraft's rotating beacon flashes at about 1.5 cps, strobe lights flash at one to three cps, and the main

rotor blades of a UH-1N flash by at about 10.5 cps. The flicker doesn't have to be mechanical, though; flying through ragged clouds can cause fairly regular alternations of light and shadow. Flickering light may cause two fairly distinct reactions: flicker vertigo and photic driving.

Flicker vertigo can happen when you are looking at flickering lights in the 20 to 40 cps range. Under this condition, your alpha wave may be disturbed at random intervals. The effect is primarily irritating, but it can also cause fatique, dizziness, drowsiness, nausea, and disorientation—a host of definite "undesirables" in the cockpit. Here's another pilot's account of the effects of flicker: "Flying a small, single-engine plane, I was approaching to land at a private airfield. My approach was directly into the setting sun. During the later part of the approach, I very nearly passed out and felt a general wave of nausea. I was able to land, but while taxiing further down the runway, I still felt impending sickness. It only stopped when I turned away from my westerly heading."

The pilot's last statement is very important. If you are feeling the effects of flicker vertigo, they will probably go away soon after the source of irritation is removed.

The second effect of flickering light—photic driving—is a lot less subtle, and can be even more traumatic. If the flicker starts below 10 cps and steadily increases toward 24 cps, it can push some folks' alpha wave along with it. Once above 24 cps the alpha wave continues to accelerate and the result can be a grand mal seizure. Even if the flickering light is removed, the progression is nearly inevitable. Fortunately, most people aren't readily susceptible to photic driving, but when it does occur, it's a real attention-getter—as the following cases illustrate.

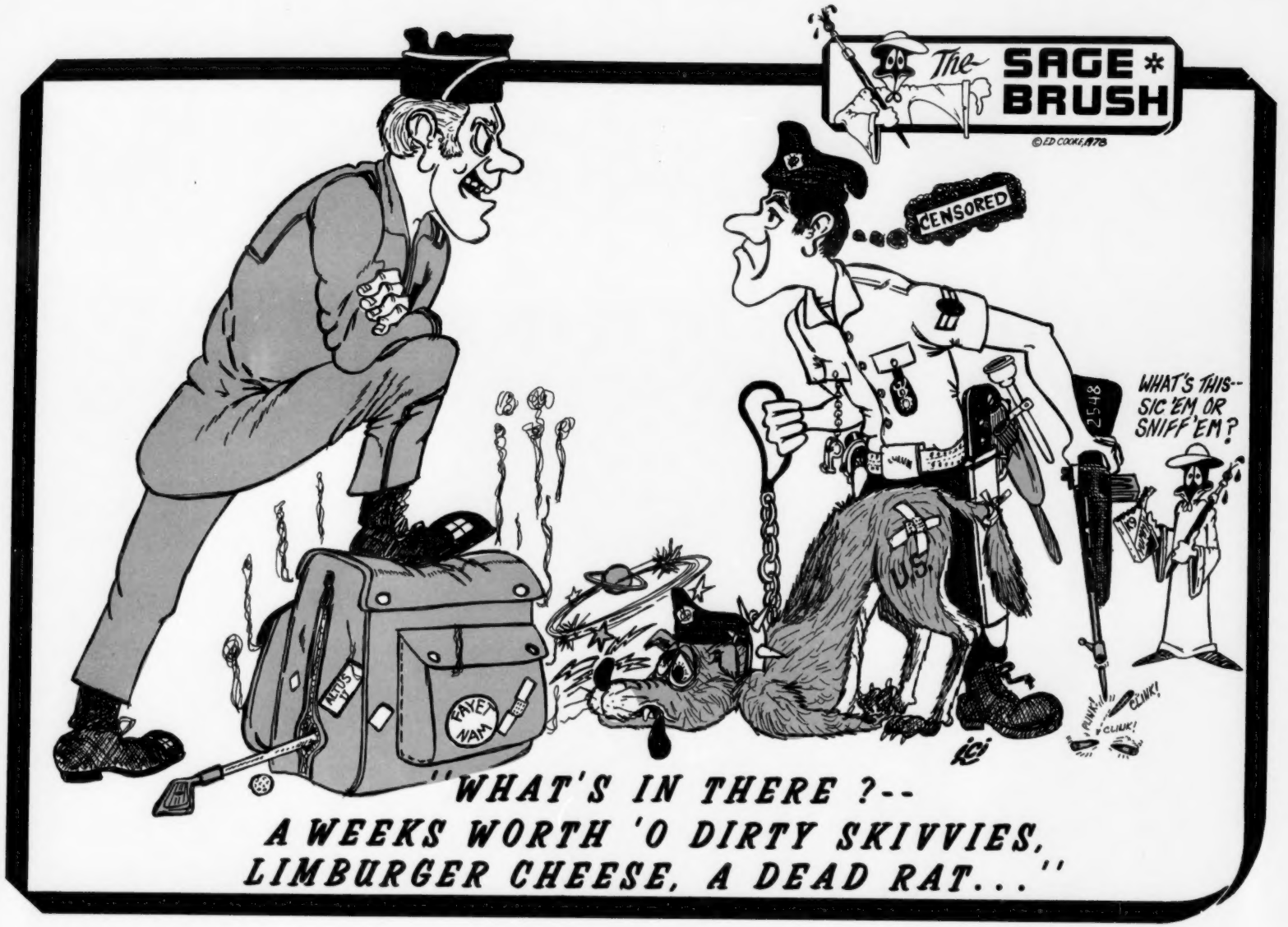
A helicopter pilot awoke after a short nap in the right seat and saw the left seater's head thrown back and jerking from side to side. The AC summoned a crewmember from the cargo compartment and had him restrain the copilot, who had started convulsive leg and arm movements and was striking the rudder pedals and cyclic. Only the copilot's lap belt and shoulder harness prevented a completely uncontrollable seizure. Then the left-seater lost consciousness for the next ten minutes, during which time his convulsions waxed and waned. After landing, the copilot was removed from the cockpit with a great deal of difficulty despite the combined efforts of the helicopter crew and rescue firemen.

In a second case, a pilot who was acting as aerodrome officer collapsed to the ramp in a grand mal seizure as he waited for a prop-driven transport to block in. After recovery at the local hospital, the victim commented that he had been mesmerized by the strobing effect of the setting sun through the spinning props.

Awareness is the best way to prevent the effects of flicker phenomena. Recalling my experience on the highway, I remember being very irritated, dizzy, and a little disoriented. The flicker fatigued me quickly, and I pulled off to the side of the road.

Unfortunately, there are few convenient roadside rest areas along airways. Eliminating the source of the flicker, however, may involve simply turning off some exterior lights while you're in the clouds or changing altitude to get out of ragged clouds. Sometimes a slight heading change can keep the sun from shining into the cockpit through whirling rotor blades. The sooner the flickering stops, the better, because your symptoms may be progressive and your flying skills simultaneously regressive.

Remember, flickering light can set you up for all sorts of problems, up to and including pilot incapacitation. Avoidance is the most effective remedy—if you see it or sense it, take action to avoid it.


The SAGE * BRUSH
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CENSORED
WHAT'S THIS-- SIC 'EM OR SNIFF 'EM?
2548
CLINK!
CLINK!
CLUK!
"WHAT'S IN THERE ?--
A WEEKS WORTH 'O DIRTY SKIVVIES,
LIMBURGER CHEESE, A DEAD RAT..."

Mishap with a Moral

Solving a maintenance problem in flight is sometimes necessary for a safe landing, but the crew could be . . .

Troubleshooting for DISASTER

As if foreshadowing events to come, number one generator failed before Flight 2860 departed New York on a crisp December morning. Maintenance disconnected the generator drive on the DC-8 cargo jet during a stop in Cleveland, and the three remaining generators powered the electrical systems satisfactorily on the leg to San Francisco. That night, when a fresh crew reported for the return run to Chicago with an en route stop in Salt Lake City, maintenance reported the electrical problem fixed. Flight 2860 departed a few minutes after midnight for the hour and twelve minute hop to Utah. Fifty-five minutes later, center cleared the DC-8 down to 15,000 feet, just before transferring them to Salt Lake Approach. The crew's reply was the first hint of more problems: "Okay, 'cause we're working with radio problems too it looks like."

What follows is the chain of events that ended in a fatal crash for Flight 2860. Using selected excerpts from the ATC transcripts and the accompanying ground track diagram, it is possible to follow along with the crew of the DC-8 as they unwittingly allow themselves to move toward the final moment of tragedy.

At 0120:38 MST, approach control clears Flight 2860 down to 6,000 feet and issues vectors toward Salt Lake VOR. Weather is 1,700 broken, wind 160 degrees at 10 knots with rain showers in the area.

0122:32 Flight 2860: Okay, we got . . . a few little problems here, we're trying to check our gear and stuff right now.

Approach Control: Okay, if you need any help, I'll give you a vector back around to final, but you're six miles from the VOR.

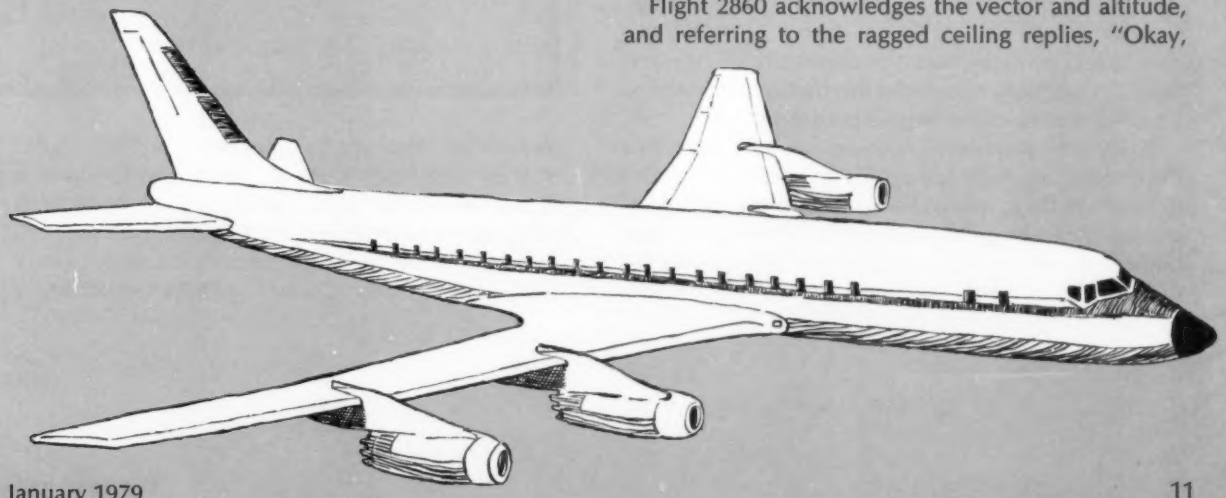
Flight 2860: Okay.

0124:18 Approach Control: Flight 2860, cleared to land, surface winds 160 at 13 knots.

Flight 2860: Roger, we got to check our gear first.

After the crew indicates that they will not land, the controller instructs, "Fly runway heading, maintain 6,000, will vector you back around for another approach." Vectors to a 330-degree heading at 6,000 feet are given.

Flight 2860 acknowledges the vector and altitude, and referring to the ragged ceiling replies, "Okay,

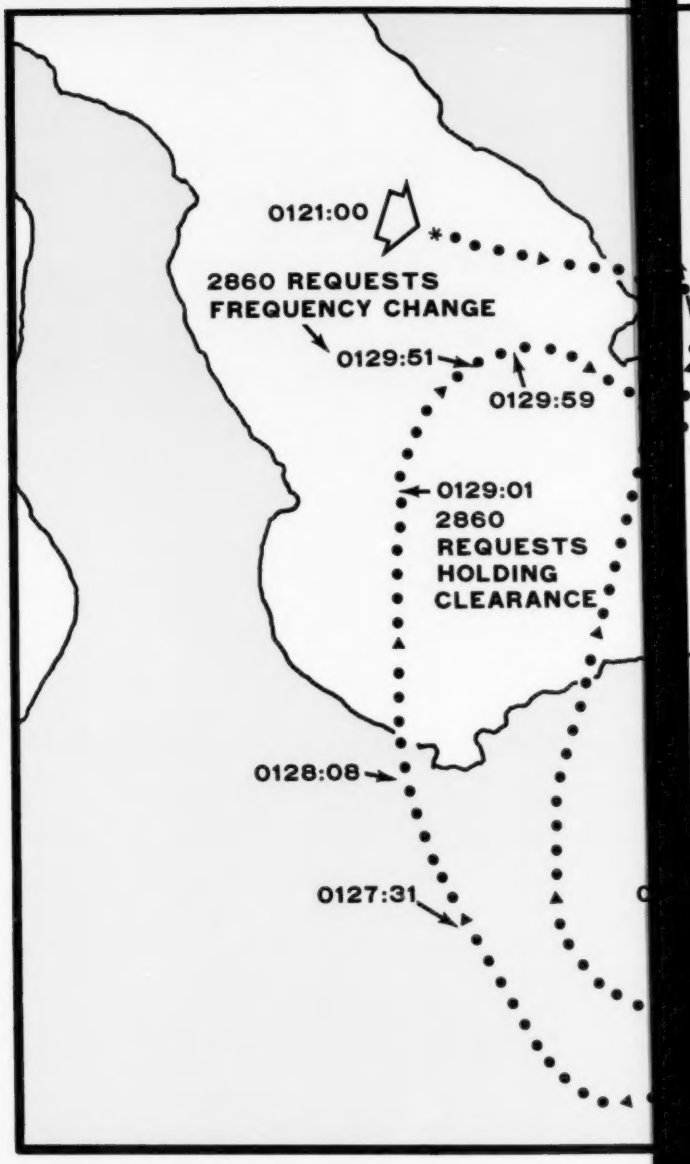


we'd just as soon not get back in it if we can help it."
Approach Control: Okay, minimum vectoring altitude is 6,000, that's the best I can do for you to vector you back for the approach.
Flight 2860: Okay, we'll try that.
0127:31 Flight 2860: Take us out about 20 miles. Can you do that? 'Cause we're gonna have to get the gear down and try to find out what the heck is going on.
0128:08 Approach Control: 2860, turn right heading 345.
0129:01 Flight 2860: Ah, tower, we're gonna have to, ah, nuts, just a second.

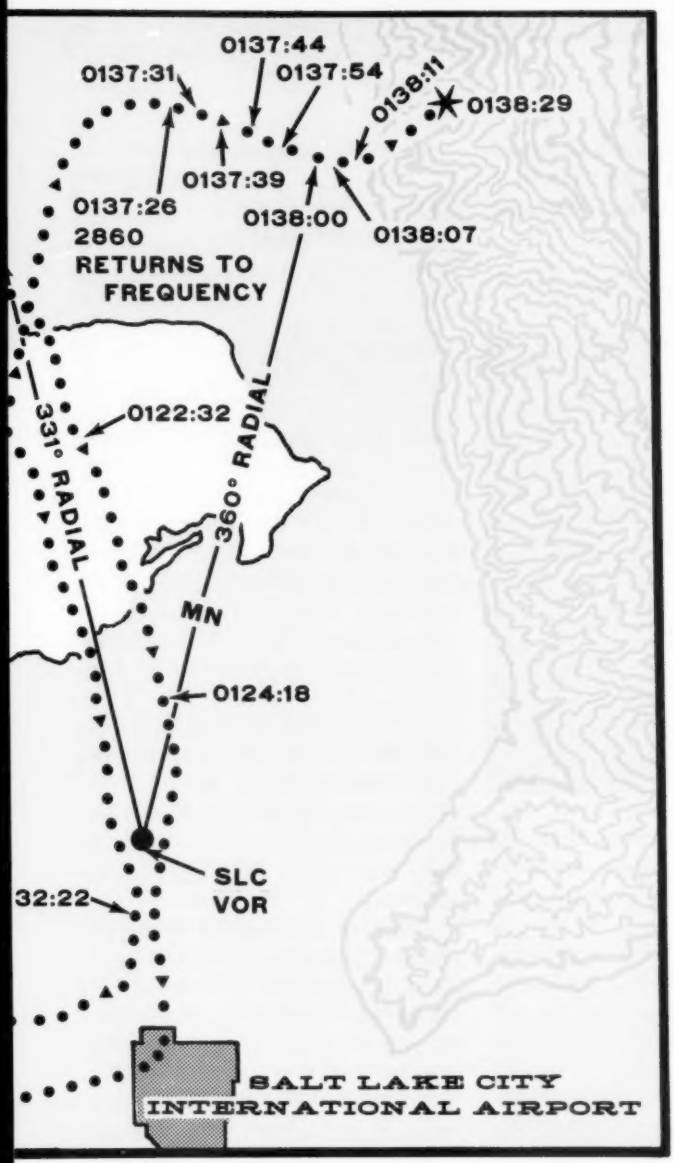
The generator problem has reappeared and the number one main bus will not take power from the other generators. The landing gear warning system and number one VHF radio are powered from the faulty bus. Fourteen seconds later, 2860 continues, ". . . you put us in a holding pattern at 6,000 on the VOR for awhile."
Approach Control: Roger, turn right, proceed direct to the Salt Lake VOR, hold on the, [radial omitted by controller] at the VOR, maintain 6,000.
Flight 2860: Okay, we'll hold north of the VOR, 6,000 . . . right turns, okay?
Approach Control: That's correct, northwest of the VOR at 6,000, right turns.
0129:51 Flight 2860: Okay, can we leave you for a little minute? We wanna call San Francisco a minute.
Approach Control: 2860, frequency change approved.
0129:59 Flight 2860: Thank you, sir, we'll be back.

The DC-8 crew contacts the company's maintenance line controller for advice on troubleshooting the electrical problem. At 0137:11, Flight 2860 terminates the call with maintenance, stating, "Only got one radio, so we're back to tower. We're going to land. We're going to call out the [firefighting] equipment" [because of the unsafe gear indication].

The crew has been off approach frequency for over seven minutes; during that time the tower tries unsuccessfully to raise them through the VOR frequency. According to radar data, their ground track outbound has been approximately north.
0137:26 Flight 2860: Hello, Salt Lake, 2860, we're back.



0137:31 Approach Control: 2860, you're too close to terrain on the right side for a turn back to the VOR, make a left turn back to the VOR.
Flight 2860: Say again.
0137:39 Approach Control: You're too close to



terrain on the right side for the turn, make a left turn back to the VOR.

0137:44 Flight 2860: Okay.

0137:54 Approach Control: 2860, do you have light contact with the ground?

Flight 2860: Negative.

0138:00 Approach Control: Okay, climb immediately to maintain 8,000.

0138:07 Approach Control repeats: 2860, climb immediately, maintain 8,000.

0138:11 Flight 2860: 2860 is out of six for eight.

0138:36 Approach Control: 2860, how do you hear?

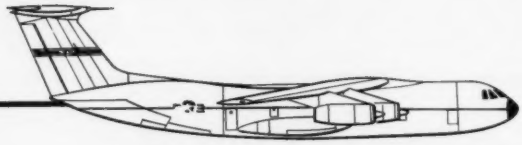
No response.

The DC-8 has impacted the Wasatch Mountains east of Kaysville, Utah, at 7,200 feet MSL. There are no survivors.

NTSB officials concluded that the electrical problem alone was not responsible for the accident, although it precipitated a series of critical events which eventually culminated in the crash. The first was a holding clearance which did not include the holding radial. Then, there was the switch from approach to the company maintenance frequency. Although approach was not aware that the jet had only one radio, the crew's request to leave the frequency should have alerted them that something was amiss. Additionally, the pilot's request to leave for "a little minute" turned out to be over seven minutes. Another crucial factor was the way the holding pattern was flown. The standard one-minute leg was exceeded outbound by one and a half minutes with a higher than authorized speed. The final critical event was the series of radio calls after Flight 2860 returned to approach frequency. Had climb instructions been given and ascent started immediately after communication was reestablished, the aircraft could have been above the terrain in time. Even continuing a right turn to intercept the 360-degree radial inbound would have avoided the mountains.

Preoccupation with the electrical problem diverted the crew's attention from their primary job of flying the airplane—which includes monitoring position and terrain. Slight alterations in the reactions to any of these events could have prevented the accident. But habits of imprecise communication and poor adherence to procedures developed through years of flying in a radar-controlled environment made it possible for a noncritical electrical malfunction to spark a series of events that ended in the silent snow 465 feet below the crest of Ed's Peak.

Flight Lines



TMF Shuts Down Wrong Engine

I am a weather forecaster, but I was previously an aerial weather observer assigned to the 54th Weather Reconnaissance Squadron, Anderson AFB, Guam, flying WC-130E's and H's. I am an avid reader of *TMF* and enjoy every article in every issue.

The "Quick Stoppers" usually provide good reading. However, I think I found an error in the QS entitled "Dangling Door" (Sep 78). You stated that with the crew entrance door open and the possibility of having to land with it down, the number three engine was shut down. Unless something happened to the number three engine, should not the number two engine have been shut down?

SSgt James M. McDonald
Det 19, 7 WW
Lajes Field, Azores

★ Thanks for the good words, and congratulations for catching our carefully camouflaged blooper. You win the unofficial proofreader-of-the-month award.

More on the Good Old Days

Thoroughly enjoyed Maj Smith's "The Good Ol' Days." I still happen to have my AC badge; I remember Dirty Dave Dillon's "Nav Protection Assoc," and all of the other memorabilia he discusses. The only thing I could add would possibly be the best known ATC clearance from those days. It was the one from Travis to Hickam, and it went, "AMBER 8 to the Golden Gate, direct to the Farallons."

Clyde E. Bennett
Colonel, USAF (Retired)

★ We recently received from the Directorate for Defense Information a copy of a letter addressed to Colonel Bennett. In it, the Air Force photographers who covered the Zaire airlift praised the Colonel for the super job he did during the operation. MSgt Dan Doherty, who headed the AAVS team at Lumbubashi, called Colonel Bennett "the backbone of the MAC airlift there." While somewhat disappointed to hear of the Colonel's retirement, he expressed hope that there are more Colonel Bennetts still with MAC and the Air Force. TMF concurs.

Aircrews as Scapegoats?

I read your article "Pay Attention!" In the August *Flyer* and it raises several questions.

Under the section entitled "Big Ones," you outlined the mission as routine. It was my understanding that this mission was anything but routine. The command and control system failed to alert the ALCC in time for the airfield to be prepared for the mission's arrival. Upon arrival, the crew found the following conditions: unlighted runway, navaids not on, CCT not on frequency, and ALCC transmitting on CCT frequency. In spite of these conditions, the crew elected to try to complete the mission instead of returning to the departure base. This situation differs from the one set forth in the article.

In the second example, you elected not to point out that the crews in Alaska fly into four airfields from which there is no go-around possibility past the missed approach point. This must generate some special techniques for getting in and out of those airports. Unless the author has flown in this particular environment, I think he is remiss in calling their action complacent or unprofessional.

My main point is that the MAC system, including *The MAC Flyer*, should be as critical of itself as it is of the aircrew. If the MAC system placed the crews in an unsafe situation, point it out so the aircrews can learn from it as well. If our training is weak, let's bring it out in the open and correct it. I don't think the aircrews should be made the scapegoat for everything, when I know that MAC is

investigating the rest of the system for problems.

Capt Christopher D. Mays
317 TAW/DOV
Pope AFB, North Carolina

★ Your concern is understandable, but here are some things you might also consider. In some respects no mission is totally "routine," but the term was used in "Pay Attention" because that type of mission profile had been flown by large numbers of aircrews in that type of airplane under a variety of conditions. The story was written and edited to bring out the fact that an aircrew became distracted to the extent that a perfectly healthy airplane was permitted to fly into the ground. The crew in the second example fell victim to almost the same trap, and bringing in a lot of side issues would only have muddied the water—the author's message being that somebody needs to keep flying the airplane at all times. We try to be objective and point out dangers to aircrews wherever we find them, whether they are caused by aircrewmembers themselves, other people or conditions, or the machinery they fly. The fact that TMF articles very seldom mention names or places should give you a clue that our intent is not to embarrass people or create scapegoats but, instead, to offer our readers an opportunity to profit from the mistakes and hazards others have experienced. Sooner or later, nearly everybody gets an anonymous turn in the barrel, and we're all a little better off for it. For more TMF philosophy, see page 7 of this issue.

C-74 With a Past

The Air Transport Command C-74 which appeared in the June issue of *The MAC Flyer* was converted to the first YC-124A, but its history is much more colorful than just this. C-74 number 45-65406 first flew on 1 September 1946. After Air Force acceptance, the airplane was based at Brookley AFB and flown by MATS over their Continental and Caribbean routes. During this time the airplane was attached to a bewildering number of units or unit redesignations: "the C-74 Squadron," the 21st ATS (Prov), the 31st ATS, etc., while operating out of Morrison Field, West Palm Beach, Florida. After accumulating about 700 hours, 406 was returned to Long Beach and converted to the YC-124A. The first flight of the YC was on 27 November 1949, and after 350 hours of stability and control testing all test equipment was removed and 406 was returned to the Air Force as a refurbished airplane in July 1954. The period from July 1954 to November 1957 is a "gray area" in the airplane's history, but apparently it served with MAC out of Kelly AFB, flying routine cargo runs. In November 1957, 406 was turned over to the Air Force Museum, where it now resides.

Nicholas M. Williams
Board of Directors
American Aviation Historical Society

★ Thank you, Mr. Williams, for some interesting historical sidelights on one of our pioneer airlift flying machines.

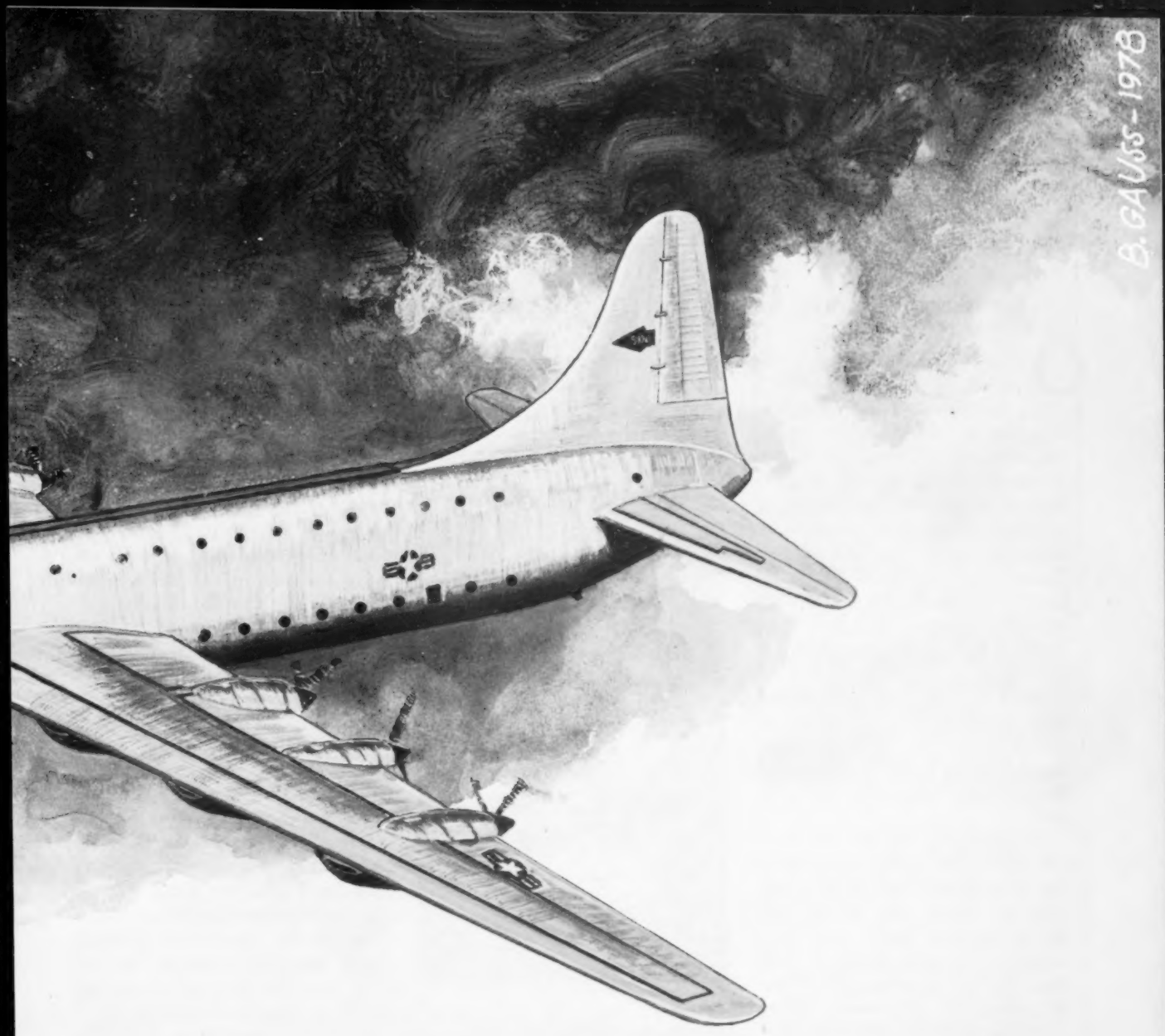
C-74 (the original Globemaster) in formation

The Airlift Legacy

XC-99

Built at Convair's San Diego plant in 1947, the XC-99 was a totally unique airplane design and the only one ever made. A hybrid, the 99 was constructed by taking the wings, six pusher-type piston engines, and main landing gear from a B-36 bomber and combining them with an original fuselage, empennage, nose gear, and various other components. The resulting behemoth cruised at 300 miles per hour, had a nonstop range of 8,000 miles, and boasted a record-breaking payload capacity of over 100,000 pounds. Some of its dimensions approached those of today's giant C-5's: wingspan—230 feet, length—182½ feet, and a rudder that stood five stories tall. The cavernous cargo compartment featured an upper and lower deck and two self-propelled hoists.

After two years of flight tests by Convair, the 99 was turned over to the Air Force for evaluation under real-life airlift conditions. Twice a week for nearly eight years it hauled payloads between Kelly and other Air Materiel



Areas throughout the United States, seldom carrying less than 75,000 pounds per trip. Using the huge Convair for a guinea pig, cargo specialists at Kelly developed innovative techniques for quickly loading the tremendous amounts of freight it could carry. Average loading times were reduced from eight hours to two or less with the introduction and perfection of a new concept—preloaded cargo bins.

At the end of its ten-year "experimental" flying career, the big bird had amassed 7,400 hours aloft; and having carried over 60 million pounds of cargo, it had more than justified the giant airlift machine concept. More than a decade later, this idea came into its own with the advent of MAC's C-5 fleet.

Today the XC-99 rests near the runway at Kelly, its home base for most of its Air Force career. A prominent tourist attraction there, it serves as a monument to innovation and the best traditions of airlift.

Writing for TMF

We know the stories are out there. The big problem is getting people to tell 'em.

One of the most exhilarating experiences in a *TMF* editor's life is finding an unsolicited manuscript in the mail. When you're sitting there staring at your typewriter in blank-minded despair, struggling to squeeze the last few drops of creativity out of an already arid brain, an article from the field is like manna from heaven. It means two or three less pages for the staff to write. It means we won't have to fill a hole in the magazine by reprinting an article about the incidence of penguin strikes in Marie Byrd Land. And best of all, it means somebody out there cares enough about flying safety to pass along a few thoughts on the subject.

If all this gives you the idea that we don't get much input from the people on MAC's front lines —you're right. We know the stories are out there. The only problem is getting people to tell 'em. Of course, there are a lot of reasons for *not* having time—like you have to take your chihuahua to obedience school, or the BX is out of refills for your Schaeffer goose quill, or you're too busy cataloguing your earthworm collection. But the two reasons we hear most often are, "I don't know what to write about" and "I can't write." Well, we can't do anything about your chihuahua, but we *can* help out with those last two problems.

War Stories Welcome Here

Since you're reading the *Flyer* you're probably connected with aviation—and that means you've very likely done some "hangar flying." Those anecdotes about life on the flight line have a lot of good story material in them; in fact, they're responsible for a large portion of the magazine. You may have heard a really good "war story" on the crew bus from base ops to the "Q"—a perfect candidate for an article. How-to-do-it stories are another good possibility; if you've got an iron-clad method for making grease-job landings in a 40-knot crosswind or for replacing the essential AC bus in flight, write it up. The point is, if it's good enough to tell your friends, it's probably good enough to tell the world.

Once you've picked a subject, you're ready for the hard part—making it interesting. That's where style comes in, and style is what the rest of this article is about.

Getting Their Attention

The most important thing to remember when you're writing for *The MAC Flyer* is that nobody has to read it. Sure, there are a few paying subscribers, but the great majority of our readers get the mag for free. So no matter how pertinent, valuable, and timely your message is, if it's not presented in clear and readable English it's going to get ignored. To help you achieve that style, we've got a few do's and don'ts:

- Do use informal, conversational language. If a sentence sounds stiff, pompous, and awkward when you read it out loud, it'll strike the reader the same way. For example, "All thunderstorms are dangerous" is infinitely

better than "All cumulonimbus formations are inherently hazardous to aerospace vehicles." Those are extreme examples, but should give you the idea.

• Don't preach. Rambling on about the joys of professionalism for paragraph after paragraph may give you a nice, righteous feeling, but very few people are willing to stick it out through three pages of high-sounding abstractions. Instead, try a specific example. Tell a story about an accident or incident where a lack of professionalism got somebody in trouble, and then let the example speak for itself. Readers resent having a message drummed into them with a club. They know a moral when they see one.

• Do keep your title short. The title is what will grab your reader's interest initially, so try to pick one with impact. Some excellent examples from the last few writing contests are "The Amen Corner" and "Who Killed MacMillan?" That kind of title makes you want to read the story. On the other hand, would you really want to read something entitled "Moderation in the Pursuit of P:ofessionalism and Self-Discipline Is No Virtue"? Neither would we.

• Do use dialogue when it's appropriate. Why write, "The copilot stated that he had the runway in sight and the aircraft commander acknowledged" when you can do it like this:

"Runway in sight," Collins announced. "Lineup looks good."

"Okay," Schmedlap answered. "I'm going visual."

When you do use dialogue, remember that people don't talk exactly the way they write. They use slang, contractions, and grammatical shortcuts they wouldn't put in a term paper. Try reading your dialogue out loud. If it doesn't sound natural, it isn't.

• Don't let your writing turn out like a Dash One, an Air Force reg, or an accident report. Nobody reads that kind of writing because they enjoy it. To get yourself out of the kind of bureaucratic daze that reading 60-16 produces, go read something else for awhile. We'd highly recommend an Air University epic called *Tongue and Quill*, which you get with the Air Command and Staff correspondence course. The book is extremely readable and it's full of good info on effective writing. After an hour or so with *T&Q*, you'll be able to get by—at least temporarily—without using massive doses of passive voice and words like "implementation" and "prioritize." Also, if you want to check out how real professional writers handle aviation subjects, you might try one of the numerous books by Martin Caidin or Ernest K. Gann.

Wrapping It Up

There are a few more tips we could give you, but, we'll limit ourselves to just one. Readers often check the length of an article before they start reading; if it's too long, they never start. So when you've said what you needed to say, resist the temptation to "tell 'em what you told 'em." If they want to go back and read it again, they can. Just add a short paragraph or two to let the reader know that the article is coming to an end, then stop.

We strongly recommend an Air University epic called *Tongue and Quill* for good guidance on effective writing.

A closer look at the approach during preflight planning can prevent a . . .

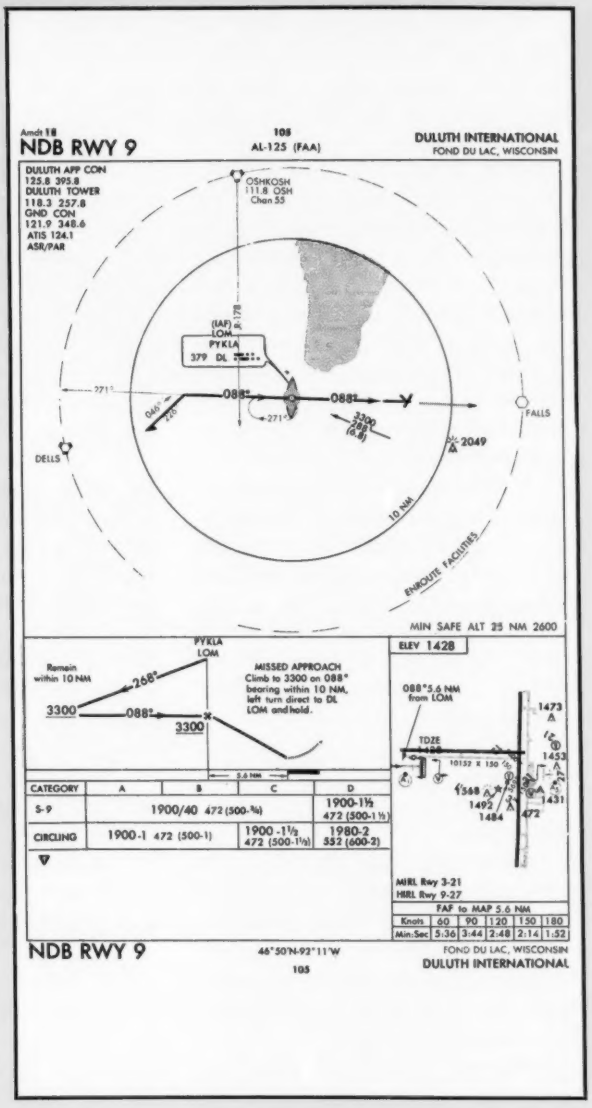
Duluth Double Take

Duluth Double Take

Pity the hapless pilot who tries to fly this NDB approach, especially at night, without first really eyeballing the approach plate. Many strange and mystifying things would confront the avid aviator who believed everything he read on this printed page. First, the pilot would not be able to tune in any of the feeder navigation aids listed on the plate. Then, at the minimum safe altitude of 2,600 feet, the towers and obstructions would appear to be closer than they had a right to be. A circling approach to the north-south runway would prove unnerving because there would be no north-south runway. Plus, a couple of extra runways would appear, adding to the quandary. Assuming a safe landing was made on runway 09, efforts to taxi using the airport diagram would convince the boldest of pilots that he had entered the twilight zone.

The reason for all this potential confusion is that the airfield diagram is not Duluth International Airport but Fond du Lac, Wisconsin, a small airport some 250 miles to the southeast. A printer's glitch, which has since been corrected, caused a Duluth instrument approach to be overprinted on a Fond du Lac background including feeder fixes and minimum safe altitudes. It's a coincidence that both airports have a runway 09, but the similarities end there. A closer look at the approach reveals some semi-sure giveaways. The big lake to the north doesn't exist at the "real" Duluth, at least not in that position. If a comparison is made between this approach and others at Duluth, the differences in airport diagrams and minimum safe altitudes become apparent.

This isn't the first time that errors have crept into approach books. Not so long ago an ILS approach was published with minimums *below* field elevation. Staring in disbelief at an approach plate is fine while flight planning, especially if it reveals a mistake of some sort in the publication. But once you're out there flying an approach, it's a little late to be proofreading the pubs. In the middle of an approach a double take can spell double trouble.



Thanks to Maj John N. Modders, Minnesota ANG, for the information on the Duluth "messed" approach—Ed.

Tower of Babble

I know you believe you understand what you think I said, but I am not sure if you realize that what you heard is not what I meant.

Did you know that the last time you talked to an ATC controller you used a specialized linguistic code based on elliptical syntax employed in a cognitive environment? Probably not, because that's how a communications researcher might define our ATC communications. In plain English it simply means the flyer and controller use a special vocabulary. The words are vehicles that carry ideas from one end of the communication link to the other, and the most frequent breakdowns happen when they don't mean the same thing to all the communicators. Fortunately we agree on the meaning of enough words to keep air traffic moving reasonably smooth despite nonstandard phraseology and technical difficulties, but there is still an alarming number of problems.

A classic error of verbal perception, which is supposed to have actually happened, goes like this. On a missed appoach the pilot of a many-motored transport gives the command, "Takeoff power." His uninitiated copilot follows what he believes is the left-seater's instruction and promptly proceeds to *take off* power by pulling the throttles to idle. You can imagine the ensuing confusion of hands, power levers, and words.

Ask the Right Question

The complexity of ATC communications sometimes makes them susceptible to confusion even under ideal circumstances. Follow our next example carefully and see if *you* don't get perplexed just as the ATC controller did.

To set the stage, we need one controller operating departure control and two C-5 crews trying to satisfy some training requirements. The weather? It's strictly field grade VMC. There's a tacan on the air base and a vortac about 15 miles northeast.

Galaxy number one, Jumbo 11, is on the "go" part of a touch-and-go landing on runway 35 with clearance for a right turn to 120 degrees and a climb to 4,000 feet for sequencing back into the PAR pattern east of the field.

A couple of miles behind Jumbo 11 is the second C-5, Jumbo 41, which has been cleared for the Fubar-5 departure at 4,000 feet after his missed approach from a visual pattern. Following the SID will take Jumbo 41 northeast of the air base toward the Lockness vortac.

Now enter the first villian: radio problems aboard Jumbo 11. The crew just can't raise the departure controller on the assigned frequency, so they maintain runway heading to the northeast and try several different channels. At the same time that Jumbo 11 finds a good freq, Jumbo 41 is also calling the controller on his assigned channel.

The controller tells both Galaxy crews that he has radar contact and tries to sort out the blips on his scope by reporting, "Jumbo 41 is four miles north of the air base tacan."

Actually, Jumbo 41 has barely finished the missed approach and it's Jumbo 11 that's four miles north of the base, but the pilot of Jumbo 41 gives the controller a "roger" on the radar position.

Eager to start their radar approach, the pilot of Jumbo 11 reminds the controller that he is maintaining runway heading and 4,000 feet. The controller promptly reclears him for a right turn to 120°. This Galaxy is now about six miles north of the airport at 4,000 feet, and during his turn he will cross the 210-degree radial of the Lockness vortac.

The controller is starting to feel insecure about his identification of the radar targets and tells Jumbo 41, "Your position is seven miles west-southwest of the Lockness vortac."

This is about where Jumbo 11 is turning to the southeast, but the pilot of Jumbo 41 responds, "Roger, thank you." Meanwhile, Jumbo 41 starts a right turn to intercept the 030-degree course inbound (the 210° radial) to the Lockness vortac. The controller instructs Jumbo 11 to turn right to heading 170 for downwind.

As both giant airlifters roll out on their new headings, the pilots spot their converging paths and take evasive action. They later estimate the miss distance at 500 to 1,000 feet.

Although the above narrative points a finger at the controller for nearly radar controlling a massive midair, the aircrews were also at fault for positively acknowledging incorrect radar position reports.

There was an easy way out of this situation for any one of the three actors—a straight question. If the controller had simply asked, "Jumbo 41, I show an aircraft four miles north of the air base vortac. Is that your position?" he probably would have resolved the identification problem. On the other hand, if one of the aircrews had asked the controller to check their position report because it didn't match the cockpit indications, then the situation could have been quickly corrected.

One of the most often misunderstood clearances is an altitude change. Aircrews routinely read back the altitude they've been cleared to and count on the controller to catch any error. Here's an example where one controller caught what others had missed.

Inbound to an overseas base, Airevac 108 was cleared from 13,000 to 9,000 feet and the pilot requested a PAR approach. Passing 11,000 feet, the flight was cleared on down to 3,500. The crew properly acknowledged all the clearances. As the altimeters showed 7,000, the crew was told to contact approach control. Airevac 108 checked in with approach and was instucted to turn right to 270 and maintain 3,500. The pilot read the clearance back, "Two-seven-zero and twenty-five-hundred for 108."

The controller responded, "One-zero-eight, affirm. Pilot's discretion perform landing check." At this point the C-9 was handed off to the PAR controller.

The final controller noticed the radar target approaching the glide path from well below and asked Airevac 108's altitude. The pilot told him that they were level at 2,500.

"Airevac 108, climb immediately and maintain 3,500, turn heading 360," was the controller's reply. The crew had descended to an altitude about 500 feet below the published safe sector altitude without questioning the clearance.

Their 270-degree heading had them pointed toward the mountains just west of the field.

The C-5 crew was fortunate because the weather and visibility were good; the C-9 crew, because a controller was alert. As you can see, though, misunderstanding an ATC clearance could easily have had deadly results in either case. The Learjet in the following episode wasn't so fortunate.

Before taxiing out, the crew picked up their IFR clearance: "Cleared to the Las Vegas Airport, as filed, via Palm Springs, direct Twentynine Palms, climb and maintain seventeen-thousand . . ."

Following this clearance, the bizjet would normally have turned

to the northeast after takeoff and proceeded safely on to Vegas. However, just before departure, the controller made a change, "Lear . . . maintain niner-thousand, cleared for takeoff."

The Learjet pilots were used to the radar environment where such altitude restrictions are often coupled with "maintain runway heading and contact departure control." The weather was IMC and the controlling agency *sounded* exactly like a radar facility, but Palm Springs has no radar. The controller expected the Learjet to

take off and turn right while climbing to 9,000 feet, an altitude well above the MEA along their proposed route.

After the Lear departed, the controller asked them to report crossing the Palm Springs 051 radial at 10 DME. (Technically this constituted a route change, but it was not transmitted as such.) A few minutes later the pilot reported "crossing the radial" and "approaching 9,000 feet." The Lear continued on its northwest heading for what must have seemed like an eternity before the pilot finally asked, "Where are we going after this; we're maintaining 9,000 feet on heading three-one-zero?"

Without radar this was the departure controller's first chance to relate the departing jet's position to the mountains northwest of the airport. He didn't catch the significance of the reported heading because he was busy trying to sequence the mini-jet with two arriving airliners.

We'll never know why a highly experienced pilot, who was familiar with Palm Springs, chose to blindly hold his northwest heading and maintain 9,000 feet (4,000 feet below the safe sector altitude). But seconds after the Learjet's data block flashed onto L.A. Center's radar, the small jet lost a confrontation with the greatest granite giant in the area.

Francis H. McAdams, NTSB member, wrote this statement in support of the Board's findings concerning the Learjet crash: "This accident occurred, in my opinion, because of nonstandard and nonprofessional clearance and transmissions on the part of both the controller and the pilot. If the proper language had been used, the accident would most likely not have occurred."

Okay Already

So far we've stressed direct questions and plain language regarding radar positions and clearances to insure that everybody is on the same wavelength. Here's an example of how one simple, short, everyday word can botch up air communication. That word is "OK" and, according to the dictionary, these initials of the native village of Martin Van Buren have come to mean approval or agreement. The meaning is too imprecise for ATC communication however.

Why? Okay, let's look at a possible misuse of the term. Suppose you're tooling along in your Lockheed aerospace vehicle at an intermediate altitude and you ask the controller for a climb to your cruise altitude. You're eager to get on up to your flight level because it's going to be a long trip and you need to conserve fuel.

The controller comes back with, "Okay, standby."

Somehow you miss the "standby" part and believe that it's okay with the controller if you climb, so you start up. As soon as the ARTCC computer alerts the controller to your altitude deviation, you're in for an interesting discussion—at least. So who's to blame? Both the controller and you. The controller shouldn't have used the nonstandard terminology, but you shouldn't have climbed without a correctly worded altitude clearance. *Okay* just isn't okay when it comes to air traffic communication.

Good communication requires patience, prudence, and charity. Have patience when you don't get an instant answer to your last carefully planned transmission. Hostility never expedited a clearance. Exercise prudence before pressing the mike button—don't butt in on the party line. Charity is not being overly critical of someone else's radio faux pas. Remember when you had trouble thinking, flying, and talking all at the same time—perhaps not so long ago.

Efficient communication is a matter of both skill and attitude. The goal is to get the people on both ends of the communication hookup to understand each other. Being in electronic earshot of another person doesn't always bring your minds into contact and understanding—you have to work at it.

*Deja Vu**

*(day-zha-voo), [Fr. lit., already seen], the illusion that one has previously had a given experience.

Wainwright AAF, Alaska
(Elevation 448 feet)

Wainwright AAF is just east of Fairbanks, and civil air traffic from five airfields within 15 miles presents a moderate hazard. Eielson AFB is 16 miles southeast of Wainwright.

The Army airfield's excellent facilities make it a popular deployment base for arctic exercises. The two parallel runways lying approximately east-west are over 7,000 feet long, and there is a parking ramp suitable for large aircraft. The northernmost runway (06L/24R) is a nonprecision instrument strip. The south runway is often left snow-covered during the long winter. The concrete runways give little color contrast to help the pilot's depth perception, especially with snow on the ground. Reflections from surrounding snow-covered hills and blowing snow can limit visibility and set you up for a whiteout.

A northern branch of the Rockies looms up to the north of the airport with one peak reaching 3,270 feet MSL 25 miles from the field. Just to the right of the final approach course for runway 24R, a hill crests 90 feet above field elevation only one-half mile from the touchdown zone. All traffic patterns are flown to the south of the airfield, near an Army firing range.

With terrain, traffic, and winter weather, a flight to Wainwright can exercise your skill and cunning as much as that of the troops.

—Adapted from ISD-Q7-910

One-half mile on final for runway 24R. Tree-covered hill just to the right of final approach crests 90 feet above field elevation.

On short final for 24R, you can see that the snow-covered airfield presents little contrast with the runway, even under excellent lighting conditions.

The final approach to 06L is over the city of Fairbanks. Large aircraft often park on the ramp to the south (right) of the runway.

C.R. TERROR

C.R. discovers that not taking the weather into account can lead to a chilling experience.

The Lethargic Lothario rolled over with a groan as the clock radio crackled to life. "Hello, hello, it's seven a.m. and this is WCYA in Charleston with the morning weather."

C.R.'s left eye popped open with interest. "We've got some good news and some bad news," the announcer quipped. "First, the good news: It's going to be a bee-uu-tee-ful Saturday with clear, sunny skies and a high in the mid-70's. Now for the bad news: Increasing cloudiness tonight with a strong—"

"Aha! Nashville, here we come," the Roly Poly Pilot whooped as his pudgy paw came down on the off switch. The thought of over a hundred bountiful beauties all trying to win the Dolly Parton look-alike contest caused him to bound out of bed with uncharacteristic élan. "Tassels has been on cloud nine ever since I conceded to fly her up to Hillbilly Heaven in my chartered Cessna," he mused. Humming merrily into the bathroom mirror, the Rotund One generously lathered his corpulent jowls, then deftly guided his sterling silver whisker-whacker across his convoluted chin. The phone rang as he splashed on the last handful of Jaded East.

"Tassels, m'love. Just received a thorough weather briefing and all ecosystems are go for our launch to the Emerald City of C and W songdom."

"Oh, Huggy Bear, just think, in a few hours, we'll be at the January Jamboree. I'm so excited. Do you really think I have a chance to win the look-alike contest?"

"Why not?" the dubious diplomat observed. "You have just as many outstanding features as Dolly herself. I'll be there in 15 minutes so have your bags packed and your motor running."

Tassels was already waiting outside her apartment as the Raucous Racer screeched to a stop. "Come, love-o-my-life, let me carry you away into the blue. I see you have packed a basket of tempting tidbits to tide us over during our sojourn," the Chubby Chomper chirped as he stuffed the last bag into the Jaguar's hatch. The overpacked pair boarded his green machine and sped off toward the airport.

"Oh, what a pretty little airplane," Tassels squealed as they pulled up to the bright red Cessna 172.

"Matches your nail polish," C.R. chuckled. "You start unloading the bags while I procure the unlocking device."

"Oh, good morning, Major

Terror," the aero-club coordinator said cheerfully. "Let's see, you've got 8278 Whisky for the weekend. She's all gassed up and ready to go. All you have to do is check weather and file a flight plan. You can use the direct line over there."

"No sweat," the Single Engine Sage retorted, "I've already checked weather and we'll file IFR; that's I Follow Railroads, hee, hee." He emerged a moment later waving the keys. "Yahoo! Look, Tassels, the keys to the footless halls of space."

After loading all the baggage, the Globular Gourmet placed the picnic basket on the back seat within easy reach, announcing, "Got to keep our strength up for the forthcoming festivities." As the Merry Mini-Motor Master clamored through the tiny door, he kicked the left tire and exclaimed, "Preflight complete. Gonna be a textbook flight, m'love—everything smooth and safe. I even filed a flight plan with the flight service people so everybody's happy."

The engine started with a sputter, then roared as C.R. firewalled the throttle. The airplane shuddered violently but didn't move. "Hmmm?" Opening the door, the Forgetful Fumbler casually leaned out and jerked the chocks from the left wheel.

"What's the matter? Are you okay?" Tassels yelped excitedly as the airplane lurched forward, almost throwing the Bibulous Buffoon out on his ear.

"Er, ah, last minute brake check," he said weakly. "Better fasten our seat belts; safety is paramount, ya know.

"Now sit back and watch me as I once again slip the surlies." His high speed turn onto the runway brought the right wheel off the ground while the left wingtip trimmed the grass along the taxiway. "Whoopee, here we go," shouted the Rhinestone Flyboy as he sucked the yoke into his protruding paunch and practically stood the Cessna on its tail. Tassels' cries could hardly be heard over the stall warning horn. "Love these little puddle jumpers. They're so maneuverable." With a gleeful squeak, he racked the mini bug smasher into a 60-degree bank turn and headed northwest. After several more whifferdills and other assorted unorthodox maneuvers, the Aviator Extraordinaire leveled the sturdy craft at 6,500 feet.

"You look a little green around the gills, m'dear," he said, as Tassels moaned forlornly. "Straight and level from here on, m'little chickadee. Got to arrive in tiptop shape. How about handing me a dill pickle from the cooler?"

"Ooooooohhhhh" was all she could manage.

Tassels had almost recovered by the time C.R. began the guided tour as they passed Atlanta. "Ah, a perfect day for cruising the blue, m'little pigeon—unlimited visibility. Look, there's Stone Mountain over there to the left and those are the Appalachian Mountains up ahead. How about another succulent sandwich for El Capitan?"

As they flew further into the mountainous region, the steely-eyed pilot (in between munches) pointed out more of the sights to his comely companion. "That's Brass Bull Baldy, which is the highest point east of Eden, and that's the Blue Ridge down there. Those mountains way off to the right are called the Great Smokies, because of the heavy bluish haze that surrounds them. It's hard sometimes to tell which are mountains and which are clouds." Tassels interrupted just as C.R. was commending himself for his eloquence as a stratotour guide.

"Are those some more Smoky Mountains up there ahead?" She pointed to what appeared to be yet another range of bluish gray mountains far in the distance.

"Uh, yeah, I guess those mountains are a little hazy today too," he said slowly, trying to locate them on a sectional chart. "That's peculiar; there aren't supposed to be any mountains higher than the Smokies on our route."

After a few more minutes, there was no doubt that what at first appeared to be distant gray mountains was actually a solid line of storm clouds stretching from left to right as far as the eye could see.

"Wonder where that came from," C.R. pondered as he searched for a hole in the formidable front.

"I thought you said the weather was going to be good all the way," Tassels said accusingly.

"Not to worry, m'pet. No mob of multicumulus clouds is going to keep us from our rendezvous with the stars. We'll just duck down under it and fly through the valleys to the other side. Can't be more than a couple of miles thick," the Clever Cavorter estimated, rolling the small plane into a dive toward the valley below. "Besides, zipping through valleys is my idea of *real* flying."

"I'm getting a little cold, C.R. Can you turn up the heat?" Tassels implored.

"Sure, anything to keep my country kitten comfy," the all-

weather wonder replied as he pulled on more cabin heat. Rain began pelting the Perspex, and the first gusts from the storm buffeted the airplane unmercifully.

"What's that funny noise?" Tassels asked.

"Nothing to worry your pretty head about," C.R. consoled, but the usually Jolly Jock's forehead wrinkled as he watched sleet and freezing rain starting to build up on the wings. Just then, the engine coughed and C.R. pulled franctically at the carburetor heat control. They descended lower and lower to keep out of the clouds. The 172 was struggling along at 100 feet above the trees with the airspeed creeping even lower despite the increased engine rpm.

Cold sweat broke out on C.R.'s furrowed brow as he leaned forward in his seat in a somewhat vain attempt to pick his way through the heavy precip.

"I don't like this weather, C.R. It looks awful. Can't we turn around?" Tassels whimpered.

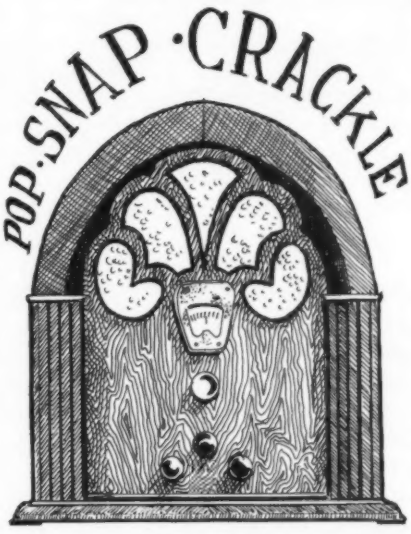
"Afraid not, my little snow bunny," C.R. said, forcing a smile. "Too much ice on this bird—I'm going to have to set her down."

"But where?" cried Tassels. "I don't see any airport—I can hardly see *anything* through this stuff."

"We'll have to make a straight-in to that grassy field directly ahead," he said. "The one with the farmhouse at the end."

"I hope there's someone at home," Tassels sobbed, " 'cause it's starting to snow now, too."

C.R. struggled to get the frozen flaps down as the ice-laden high-winger streaked over the last row of trees at the edge of the clearing. Forty feet above the ground he managed to get half flaps, but it took full throttle to keep the stall horn quiet. The wheels touched the icy grass at 90 mph with the farmhouse directly ahead and getting bigger by the microsecond. The panting pilot stood on the brakes but the tiny plane slid along like a hockey puck. Fifty mph and the petrified pair could pick out the flowers on the kitchen curtains. Thirty feet from the house, the right wheel struck a mound of manure and the perspiring pilot jammed full right rudder, spinning the small plane around. As it came to rest heading in the opposite direction, C.R. instinctively reached up and shut off the engine.



"Well, it looks like the weather man really blew this one," the pensive pilot proffered as he sighed deeply.

"Someone blew it all right," Tassels said icily.

Muffled voices and the sound of footsteps crunching through the ice and snow came closer.

"Where'd it come from, Paw?"

"Dunno, let's see if there's anybody hurt."

A gloved hand cleared a circle on the foggy window and a face peered through.

"Hey, Paw, it's a man and a woman jest a-sitting and starin' in space. The woman looks like—naa, couldn't be."

The friendly farmer and his son helped the two wayfaring strangers through the blizzard and into the house.

"Radio says this here's the worst winter storm to hit these parts in 25 years," the farmer's gregarious wife chortled as she turned down the old RCA on the kitchen table. "I can see how my son mistook you for Dolly Parton," she said pouring them a cup of coffee. "You're the spittin' image of her."

"Well, thank you, Missus Haybailer. That makes me feel a lot better about having missed the biggest thrill of my life," Tassels said, throwing a deadly glance toward the Errant Aviator across the table.

The radio hissed with static as an announcer relayed the latest weather information: "The January Jamboree has been cancelled due to the storm, and all—"

"Aha!" C.R. sprang to life. "See there, my little Blonde Bombshell, you didn't miss it after all. And besides, you've already won the contest as far as the Haybailers and I are concerned."

"That may be," Tassels said sternly, "but it will be a hot day in January before I'll let you fly me anywhere again."

"Well, maybe it will warm up tomorrow," the Undaunted One remarked as he turned toward the window and watched the small airplane disappearing in the swirling drifts of snow.

Quick Stoppers

Tips on Trees

Current combat exercises aim at making training like the real thing. For some helicopter crews involved, getting down close to the ground to avoid enemy threats is a must; but they found a different enemy while flashing through the forest—the trees. Here's how one copter crew topped some tall timbers with their rotor tips.

An instructor pilot and student were zipping along at 100 feet AGL in their HH-53. The IP was giving headings to the left-seater to guide him toward the LZ in a shallow valley. The IP had everything set up for a quick straight-in approach to the pickup point. He was surprised when the student overflew the clearing and then started a 50-degree bank turn back to the right, so the IP asked the aspiring flingwing flyer what he had in mind. Like any good student, the lieutenant divided his attention between answering his teacher's question and flying the Super Jolly. In the process, he didn't notice the distance decreasing between the 53 and the trees. The IP suddenly saw their proximity to the pines and told the student to pull up. He then grabbed the controls, but didn't get the Jolly Green into a climb soon enough to keep the tips out of the treetops.

You can draw a multitude of morals from this mishap, but good crew coordination would have decreased the potential for a costly tree entanglement considerably.

Shortcut to a Reject

Loadmasters are very conservative when it comes to calling for an abort from the back, but when the airplane appears to be coming apart at the seams, there's only one choice.

The crew started a takeoff in their 320,000-pound Starlifter with everything looking good. As the sweptwing accelerated smoothly through 130 KIAS, the pilot expected to hear a reassuring "Go" at 141 knots; instead he was surprised by a call of "Reject!" from the back. The cockpit crew efficiently performed the required actions: spoilers deployed, engines into reverse, and brakes applied. Despite these measures the transport seemed bent on using more than the 7,000 feet of runway remaining. At 80 knots the AC applied maximum braking to stop the Starlifter on the pavement.

The loadmaster in the rear of the high-speed heavy had called the reject after witnessing five sections of overhead cargo compartment lights drop from the ceiling. Fortunately the loose panels didn't hit anybody and the only damage was four deflated main gear tires after the fusable wheel plugs did their duty.

The entire episode was caused by a shortcut technique used to install the lights. The maintainers saved time by bending the fasteners, slipping them into the mounts, and then flattening them out again. After several quick installations, the fasteners didn't fasten any more and the lights fell out of the ceiling. This time the rejected takeoff did minimum damage, but not every shortcut (by ops or maintenance folks) has such small consequences.

Herky High

You can get a lot of notoriety for setting a world's record—even if it's for poor judgment. Here's how a crew recently gained plenty of attention by trying to discover just how high a Herky will fly.

With no pax or cargo aboard they started their '64 E model toward FL 330. There the crew prebreathed oxygen for 30 minutes to denitrogenate their bodies—one of their few smart moves. They then commenced a climb for FL 370, but approaching 35,000 they couldn't squeeze any more altitude out of the Brown and Green. Unfettered by common sense, they closed the engine bleed valves to get just a little more power, finally managing to level off at FL 370. Of course, turning off the bleeds also killed the pressurization. The faithful sixty-four model wasn't as tight as when new, so the cabin altitude began climbing at 4,000 fpm. The Herk cruised unpressurized at FL 370 for ten minutes before the crew started a descent.

This Herky high might have been nothing more than another bar story if the "experimental" flight hadn't resulted in medical problems for one of the crewmembers. On the way down to 15,000 feet, the loadmaster complained about a pain in his shoulder. It subsided, however, and the crew continued to their destination without any other incidents. The next morning the loadmaster felt bad again, so he went to the emergency room at the base hospital where he was treated for an ear block and released. Two hours later, he checked in at the flight surgeon's office and was diagnosed as suffering from decompression sickness.

A Surly Stowaway

While the crew was doing the leveloff check on a training flight, an intruder that had stowed away in their turboprop transport tried to enter the cockpit. An alert forward observer twice thwarted the intruder's efforts to gain access to the flight crew. On the third attempt the crewman was injured and the intruder successfully entered the cockpit. Once on the flight deck, she crawled under the copilot's seat, moved forward of the rudder pedals, and disappeared.

The AC aborted the mission to get medical attention for the injured enlisted man. A postflight search failed to locate the stowaway, and the aircraft was sealed and baited. Later, after taking apart sections of the flooring, searchers located the intrepid intruder under the flight deck—a mother cat with two kittens.

This incident emphasizes a couple of things: the necessity of a thorough preflight inspection, and expecting to find the unexpected. The injured crewmember was commended for his heroic defense of the cockpit.

—Adapted from *USN Weekly Summary*

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Never Assume

Ever wonder why USAF maintenance folks emphasize the use of standard marshaller's hand signals? This account of a near-fatal incident by a trijet airline captain helps to explain.

"My company's regulations clearly state that before taxiing away from the gate area we must receive an all-clear salute from the ground man.

"Recently we were cleared to 'start all three.' After completing the normal starts, I reported 'three normal,' but got no response from the maintenance man. The agent on the jet bridge gave me an ambiguous signal. I responded with palms-up and a questioning shrug of my shoulders. He answered with what I considered to be a 'Charge!' gesture. I gave him a salute and waited for a positive all-clear signal. He pointed to his watch and again gave me the 'Charge!' signal. The copilot said something about the agent having to do everything at this station. I added power and started to taxi out. The agent came running forward on the jet bridge, giving me a frantic (and proper) stop signal. I slammed on the brakes just as the ground man came running out from under the aircraft.

"I would like to blame the following people for this nearly fatal mishap: the ground man for not using proper communication procedures, the agent for giving me misleading and unauthorized hand signals, my copilot for leading me down the garden path, and my folks for having a dumb kid.

"Several things happened that set me upon the brink of disaster. Isn't that always true in an accident? The facts remain: I did not follow proper procedures. I allowed myself to be influenced by other people who were not in a position to properly and intelligently provide information. I endangered the life of a ground crewman because I started to taxi without clearance. Finally, I can only blame myself.

"I'm thankful that the crewman wasn't injured. It wouldn't sound very good at the hearing to have to sit there and say, 'But I assumed . . .' "

—Flight Safety Foundation

Notable Quote

We should all bear one thing in mind when we talk about a troop who rode one in. He called upon the sum of all his knowledge and made a judgment. He believed in it so strongly that he knowingly bet his life on it. That he was mistaken in his judgment is a tragedy—not stupidity. Every supervisor and contemporary who ever spoke to him had an opportunity to influence his judgment, so a little bit of all of us goes in with every troop we lose.

—Aerospace Safety

After Deadline

CREW TRANSPORT IS ON THE WAY! The people who handle over 20,000 crew transport requests a month in MAC are dedicated to improving service to their prime customer--the MAC aircrew. Like any limited resource, however, this system can be overtaxed occasionally, especially when hit by combinations of large airlift operations, unscheduled arrivals, changes in ETIC's, or long distances to billeting. Recently, crew transport at a MAC base processed 140 requests in a three-hour period. This kind of surge would challenge the abilities of the most adroit dispatcher.

When problems do arise, the folks who manage the system want to know about it. HQ MAC/LGMV personnel review every MAC Form 54 submitted by aircrews. Most incidents involve breakdowns in communication and coordination and managers at all levels are working to eliminate these occurrences.

Sound management, improved coordination, and aircrew understanding will result in crew transport which will be on the way every time in minimum time.

DONNING A C.R. TERROR T-SHIRT this month in the interest of flying safety is Miss Jane Boyer (see page 3). Miss Boyer, a professional model from the St Louis area, conveys a gentle reminder that the 1979 MAC Flying Safety Writing Contest is in full swing. The expert photography is by Bob Dedee.

REX RILEY RIDES AGAIN. Dormant for several years, the transient service award program is being revitalized. The Rex Riley evaluators from AFISC try to take an objective look at servicing, flight planning facilities, billeting, and messing availability with an eye toward safety and efficiency. Aircrews can help by sending a copy of completed transient aircrew questionnaires (when available) to Rex Riley, HQ AFISC/SEDAK, Norton AFB CA 92409. This info assists evaluators in deciding which bases to visit.

TENERIFE FINAL. The Spanish accident report on the Tenerife tragedy was recently released. Officials concluded that the fundamental cause was the KLM captain's initiation of a takeoff without clearance and his failure to obey the "stand by for takeoff" call from the tower. Even after learning that the PanAm jumbo jet was still on the runway, the KLM 747 continued its takeoff roll. Recommendations include the use of more concise and unequivocal language by both crews and controllers to facilitate exact compliance with instructions and also separating the ATC clearance and the takeoff clearance, which will prevent use of the word "takeoff" in the ATC clearance.

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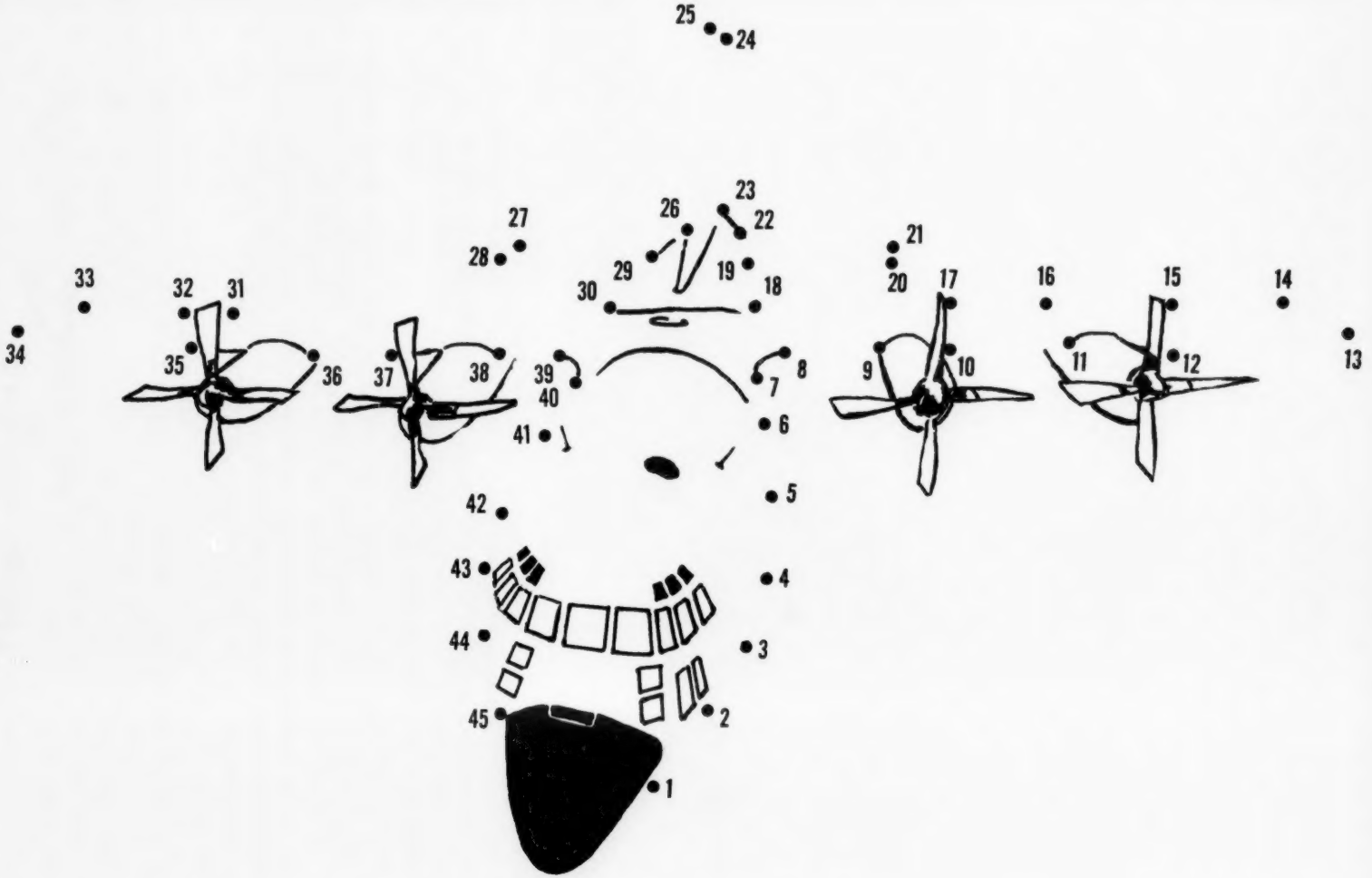

For those of you who like to do things by the numbers . . .